

WHAT IS CLAIMED IS:

1. An enthalpy exchanger, comprising a heat conducting wall along both sides of which two respective media can flow in mutual enthalpy-exchanging contact, the wall being provided on at least one side with a hydrophilic cover layer having little or no hygroscopic action.
2. The enthalpy exchanger according to claim 1, wherein the cover layer has a thickness of less than about 50 micrometers.
3. The enthalpy exchanger according to claim 1, wherein the cover layer is applied to relevant surfaces of the wall by chemical means by first activating each relevant surface physically, chemically or mechanically and subsequently forming the cover layer by, a chemical reaction from an aqueous solution.
4. The enthalpy exchanger according to claim 1, wherein the cover layer comprises Portland cement.
5. The enthalpy exchanger according to claim 1, wherein the heat conducting wall is provided with surface area enlarging elements.
6. The enthalpy exchanger according to claim 4, wherein the surface area enlarging elements are fins or the like.
7. An indirect evaporative cooler comprising a heat conducting wall having a primary surface for heat exchange with a primary air flow and a secondary surface for heat exchange with a secondary air flow the secondary surface being provided with a hydrophilic cover layer having little or no hygroscopic action.

8. The indirect evaporative cooler according to claim 7, wherein the cover layer comprises Portland cement.
9. The indirect evaporative cooler according to claim 8, further comprising a flow separating device for directing a portion of the primary air flow over the secondary surface to form the secondary air flow.
10. The indirect evaporative cooler according to claim 9, further comprising a wetting device for supplying a quantity of water to the cover layer.
11. The indirect evaporative cooler according to claim 10, wherein the heat-conducting wall is provided with surface area enlarging elements.
12. The indirect evaporative cooler according to claim 11, wherein the surface area enlarging elements are fins.
13. The indirect evaporative cooler according to claim 12, wherein the surface area enlarging elements on the secondary surface of the heat exchanger are partially coated with the cover layer.
14. The indirect evaporative cooler according to claim 7, wherein the cover layer is selectively applied to the wall by spraying onto selected surface areas.
15. The indirect evaporative cooler according to claim 9, wherein the cover layer has a thickness of less than 50 micrometers.

16. An enthalpy exchanger, comprising a heat conducting wall along both sides of which two respective media can flow in mutual enthalpy-exchanging contact, the wall being provided on at least one side with a hydrophilic cover layer having little or no hygroscopic action, the cover layer exhibiting one or more properties selected from the group consisting of:

- (a) a strong adhesion to each relevant surface;
- (b) a substantially complete covering of each relevant surface;
- (c) a maximum thickness of 50 micrometers;
- (d) a heat resistance which is small relative to the total heat resistance in the enthalpy transfer path between the relevant surface and the flowing medium;
- (e) a moisture absorption capacity such that water absorbed during wetting spreads as a film over the cover layer,
- (f) little surface roughness such that flowing medium encounters only a negligible flow resistance;
- (g) little susceptibility to thermal, chemical and biochemical degradation, erosion, growth of micro organisms and adhesion of dirt;
- (h) morphological, chemical and physical uniformity;
- (i) the ability to retain a buffer supply of water which is absorbed in the cover layer by capillary action